



# Epidemiologic Notes & Reports

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**GROUP A STREPTOCOCCUS  
OHIO COUNTY AND GREEN RIVER HEALTH  
DISTRICT  
JULY, 1999  
Peggy Dixon, RN**

Nationwide, the Centers for Disease Control and Prevention (CDC) receives between 500-1,500 reports of Group A Streptococcus cases each year. Twenty percent of these cases are fatal. Most clusters of Group A Streptococcus are seen in families and nursing homes. In Kentucky, there were between 8-13 confirmed cases each year through 1998. The majority of these cases are clustered in Northern Kentucky.

Necrotizing fasciitis results from inflammation causing changes leading to cell death of the fascia, a fibrous tissue covering subcutaneous tissue and muscle. The bacteria which most commonly causes this condition is Group A *Streptococcus pyogenes* (GAS).

In addition to necrotizing fasciitis/myositis, GAS can be responsible for the following infectious manifestations: sepsis, pneumonia, pharyngitis, meningitis, peritonitis, osteomyelitis, septic arthritis, polyarthritis, cellulitis/abscess, surgical wound infection, nonsurgical wound infection, and postpartum sepsis.

Group A Streptococcus, invasive disease is a 24-hour reportable disease in Kentucky; necrotizing fasciitis is not mandated by state law as reportable. However, a surveillance form can be used by the Division of Epidemiology and Health Planning for reporting GAS to CDC; necrotizing fasciitis is listed among the other clinical manifestations on the form. The CDC case definition for a confirmed case of Streptococcal Disease, Invasive, Group A, is one that is laboratory confirmed. Laboratory confirmation consists of isolation of *Streptococcus pyogenes* by culture from a normally sterile site (e.g., blood, cerebrospinal fluid (CSF), or less commonly, joint pleural, or pericardial fluid).

In response to numerous inquiries and public concerns, the Commissioner and the State Epidemiologist sent a Communicable Diseases nurse consultant to the Green River Health District to conduct an investigation of GAS in Ohio County on Tuesday afternoon, July 20<sup>th</sup>. In addition to determining whether there was a common source of infection, or individual sources of infection, information from records was to be used for case definition determination for Group A Streptococcus, Invasive Disease.

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Three known reports of GAS in Ohio County (five-year median for GAS cases in Ohio County is zero), and two others previously reported from that health district were to be reviewed to determine whether there was any association. On the morning of July 19<sup>th</sup>, a fourth patient in Ohio County was reported, given a pending status, and included in the investigation.

One patient had been transferred to a Louisville hospital, on Monday, July 19<sup>th</sup>. Chart reviews at the hospitals were completed by the evening, of July 22<sup>nd</sup>.

An epidemiologic investigation of four Ohio County residents and two from the Green River Health Department District, revealed all were clinically diagnosed as necrotizing fasciitis. Only five met the case definition for Group A Streptococcus, Invasive Disease. One did not meet the case definition because the laboratory specimen was not taken from a normally sterile site. In addition, data that was gathered revealed that three met the case definition for Toxic Shock Syndrome, as well.

Ages ranged from 52 to 68 years of age; median age 55 years of age. Two were male, four were female. Dates of onset of illness were 2/28/99, 3/17/99, 4/15/99, 4/20/99, 7/10/99 and 7/11/99.

Symptoms and signs upon admission to the hospital were, pain, redness at the affected site, chills, aching, cellulitis, rash, respiratory infection, sepsis, syncope, confusion, and hypotension. Two developed pneumonia, four developed cellulitis, two required amputations.

Although no previous hospitalizations nor medical services were identified as possible sources, nor could any common source of infection be identified, portals of entry into the body and predisposing immunosuppressive factors are known for contributing to placing persons at risk of infection.

Possible portals of entry were: one individual had a blister on the thumb and lip and had cared for someone who had strep throat; another had a cut on the finger that would not heal for two weeks prior to onset of illness; a third person had a gum shaving procedure two weeks prior to onset of illness; the fourth person had an abrasion on the opposite knee. Possible predisposing risk factors included: three patients were diabetic; one had a disabling back condition for several years; one had rheumatoid arthritis and took steroids; and two were obese. All had multiple hospital stays which were indicative of health related problems.

Recommendations for preventing Group A Streptococcus infections include:

1. Always use good basic hygiene practices: cover the mouth when coughing or sneezing, dispose of tissues in a manner that will not allow others to touch them. Wash hands using clean water and soap. Apply lotion to hands to prevent chapping.
2. Those who are immunosuppressed, elderly, have a chronic or disabling disease, or take chemotherapeutic drugs or steroids, should avoid contact with and sharing of the same breathing space of anyone complaining of symptoms of a sore throat.
3. Practice habits that will enable the immune system to assist the body in maintaining a good level of health. Exercise regularly; eat foods from the five basic food groups (particularly fruits and vegetables); maintain proportionate body weight for height; and seek a spiritual and emotional level of well being.
4. Care for minor injuries at home immediately by washing the wound with soap and water, applying an antiseptic solution, and covering with a sterile dressing.
5. Seek medical attention for persistent, unresolving signs and symptoms of infection: pain, redness at a focal point, edema, purulent drainage from a wound, and fever.

### **SURVEILLANCE of REPORTABLE DISEASES**

**Sue K. Billings, DVM, MSPH**

Disease surveillance is a cornerstone of public health practice and is necessary for the continuing improved health status of the population. Surveillance is the process that: identifies infectious disease outbreaks and newly emerging infections or conditions; alerts the health care field to food or waterborne outbreaks; detects changes in communicable disease trends; and monitors how well vaccine and other health programs are working. Surveillance includes the systematic collection, analysis, and interpretation of data in order to develop preventive and control measures for given health conditions.

Surveillance begins with the physician or health care provider who diagnoses or suspects a reportable condition in a patient. This information is then reported to the local health department (LHD) or the state health department as required by statute. In Kentucky, the majority of conditions are reportable first to the LHD, which in turn reports to the Kentucky Department for Public Health (KDPH). In some states all reporting is at the state level. Initial reporting to the local health department allows epidemiologic investigations and preventive measures to begin promptly. A surveillance study by Thacker and Berkelman estimated that reporting completeness for common notifiable diseases varies widely, from 6% to 90%<sup>2</sup>. Within the Division of Epidemiology and Health Planning, of the KDPH approximately one-third of the report forms received are complete for information on initial receipt. Often times laboratory results may still be pending, but many forms lack critical information such as clinical signs, patient demographics, and onset date.

A survey addressing surveillance issues was mailed to all local health departments to gather data on their surveillance practices and problems. The survey consisted of seventeen questions, mostly yes or no, and was designed to be answered in minimal time. Seventy-six of the one hundred and twenty county health departments returned completed questionnaires for a response rate of 63.6%.

The first section of the questionnaire asked questions regarding the personnel that handled the reporting of reportable diseases:

- Over eighty-nine percent (89.5%) of the respondents reported there is a designated person to submit the Kentucky Reportable Disease Form;
- 87% had a backup person.
- 53% of the responding health departments are involved in active surveillance; i.e. the health department personnel make initial contacts with hospitals or physicians to determine if any reportable conditions have been seen.

The next section of the questionnaire dealt with equipment issues:

- Although 99% of the health departments had fax machines, only 50% indicated that they *occasionally* faxed reportable forms to the state office;
- 46.1% said they *never* faxed reports;
- One-half (50%) of the health departments that returned the questionnaires have internet access;

- E-mail use was available to 41% of the respondents.

The last section of the questionnaire addressed reporting completeness, timeliness and issues that delay or prevent reporting which meet the Centers for Disease Control and Prevention’s (CDC’s) case definitions for reportable conditions. Reports that meet CDC’s case definitions enable the state to count them as confirmed cases and are the most useful for surveillance purposes since this allows comparison of surveillance data with other states:

- Ninety-two percent (92%) of the responding health departments indicated they had the case definitions available for reference;
- 89.5% attempted to adhere to them when completing the reports;

In 1998 the KDPH, Division of Epidemiology and Health Planning (DEHP) installed a toll-free telephone number 1-888-9REPORT to expedite reporting, especially for those conditions that should be reported within 24 hours:

- Seventy-one percent (71%) of the health departments indicated they *never* use this service;
- 29% indicated they use it only occasionally.

Initial reports to local health departments are often not received within the time designated by regulation and are therefore delayed being sent on to the DEHP. For example, the average report time for the 18 confirmed cases of Group A Streptococcal invasive infection so far in 1999 was 22.7 days. This disease is to be reported within 24 hours to the local health department and the KDPH. As required by 902 KAR 2:020, Section 1, the reporting process should start when a health professional makes a probable diagnosis that is supported by case definition or reasonable belief that the disease is present,. Reasons given by physicians for failure to report notifiable diseases include: assuming the case was reported by someone else; being unaware disease reporting was required; and being concerned with confidentiality <sup>1</sup>:

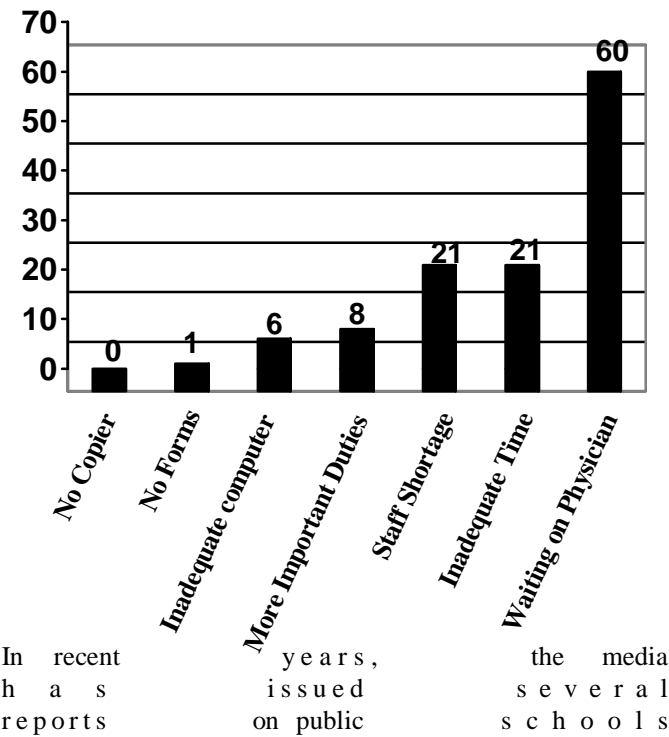
- Seventy-five percent (75%) were aware of KRS 258.065 and 902.KAR 2:020 mandating the reporting of animal bites and communicable diseases, respectively. However, only 51% submit rabies post-exposure prophylaxis reports that are required by 902 KAR 2:020, Section 4.

The final question listed seven reasons (Chart 1) that could delay the reporting of a disease or condition, and asked the respondent to check all that applied. There were 3 reasons accounting for the majority of the delays: 78.9% indicated “waiting for additional information from a physician” was

the primary reason for delayed reporting;. staff shortage (27.6%) and inadequate time (27.6%) were equally indicated as reasons for delays.

In this modern age with new and emerging infections, such as West Nile Fever in New York, rapidly crossing the thresholds of our nation, surveillance is crucial for identifying and controlling disease entities. Therefore, public health surveillance needs the participation of all health care givers, especially physicians and laboratories, to ensure the continued good health of our nation.

Chart 1. Reasons for Delayed Reporting



References

- Teutsch SM, Churchill RE. Eds. *Principles and Practice of Public Health Surveillance*. New York, Oxford University Press; 1994:222-223.
- Thacker SB, Berkelman RL. Public health surveillance in the United States. *Epidemiol Rev*. 1988; 10:164-190.

### **Reportable Disease Desk Reference**

The Division of Epidemiology and Health Planning, Kentucky Department for Public Health now has a Desk Reference for Reportable Diseases. This reference was developed to improve surveillance of reportable diseases by medical providers as mandated by Kentucky Administrative Regulation 902 KAR 2:020 on Disease Surveillance.

The Desk Reference includes the Centers for Disease Control and Prevention case definitions for infectious conditions and laboratory criteria needed for case confirmation. Each page on a given reportable disease has a section on actions required, prevention measures, contacts for consultation and related references. Required reporting times, that vary from immediately to within 5 business days, are clearly outlined and a copy of the regulation is in the reference. Copies of the Kentucky Reportable Disease Form (EPID-200) and all other necessary forms are included within the reference. They may be reproduced as needed by office personnel.

A directory of Division personnel is provided as well as a listing of the local health department surveillance contacts. Mailing of the reference began during the first week of October to all hospital infection control personnel and communicable disease surveillance contacts in the local health departments. Some of the references will be delivered via the Public Health Conferences being held in different locations during October. If the surveillance person or someone else in the health department has not received the reference by November they should call 502-564-3418 and speak with Pat Beeler, Surveillance Data Technician or Sue Billings, DVM, MSPH, Medical Epidemiologist.

As case definitions are amended, diseases added or deleted, and regulations changed, we will make revised pages. Updates will be made on an annual schedule.

Many people in the Division have contributed to this reference to make it user friendly. Surveillance of infectious disease begins with the health care provider who makes the initial diagnosis and this desk reference is designed to promote more timely reporting of notifiable diseases. Improved surveillance is necessary to recognize new and emerging infections and to respond promptly to diseases that require public health control measures.

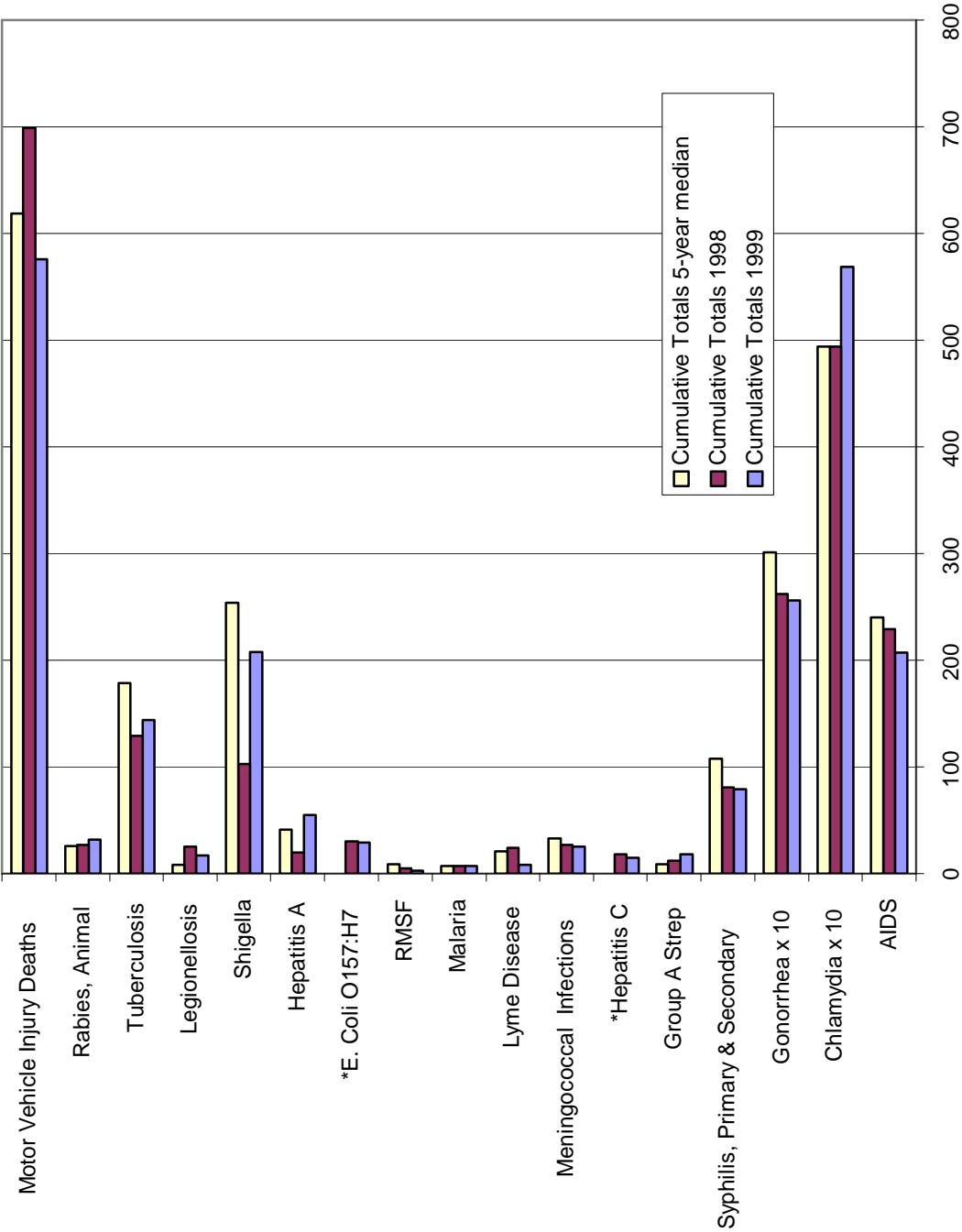
**For additional information or to REPORT call 502-564-3418; 1-888-9REPORT**  
(888-973-7678); or FAX 502-564-0542.

An answering service is taking calls during non-working hours

### **Dr. Samuel B. Gregorio Named Lab Director**

The Cabinet for Health Services has named Dr. Samuel B. Gregorio as Director for the Division of Laboratory Services, Kentucky Department for Public Health. Dr. Gregorio has served as acting laboratory director since July 1998, and as manager of the microbiology branch of the Division of Laboratory Services since 1983. Dr. Gregorio is a graduate of the University of Michigan School of Public Health, where he earned a doctorate in public health. He also holds master's degrees in epidemiology from the University of Hawaii and education from Silliman University in the Philippines. He came to state government in 1981 as an employee of the Cabinet for Natural Resources and Environmental Protection. Congratulations Dr. Gregorio.

CASES OF SELECTED REPORTABLE DISEASES IN KENTUCKY, YEAR TO DATE (YTD)  
THROUGH SEPTEMBER 1999



Vaccine Preventable Diseases		
Diseases	1999 YTD	1998 Annual Totals
Diphtheria	0	0
Haemophilus influenzae b	5	7
Hepatitis B	27	44
Measles	0	0
Mumps	0	1
Pertussis	16	93
Polio	0	0
Rubella	0	0
Tetanus	0	0

\*Historical data are not available.  
Disease numbers reflect only those cases which meet the CDC surveillance definition.  
Contributed by: Patricia Beeler, Surveillance and Health Data Branch.

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**RETURN SERVICE REQUESTED**

## F or Y our I nformation

Wyeth Lederle Vaccines announced on October 15, 1999, that it has withdrawn its RotaShield® (rotavirus vaccine) from the market and has requested the immediate return of all doses of the vaccine. It is important to note that available data do not indicate an ongoing risk to children given RotaShield in the past. This vaccine has not been provided by our State Immunization Program for our local health departments. For more information, physicians may call 1-877-ROTA-KID (1-877-768-2543).

Coming Soon!!! A listserve e-mail message network is being set up by the Division of Epidemiology and Health Planning for local health department surveillance staff, Epi-Rapid Responders and hospital infection control personnel. A listserve will allow for rapid communications regarding possible outbreaks and other discussion concerning disease problems. Eligible participants will receive sign-on information soon.

The Division of Epidemiology and Health Planning recently mailed out notebooks containing copies of *Medical Management of Biological Casualties* and *Medical Management of Chemical Casualties*. These two military handbooks are a reference for planning and response to biological and chemical terrorism. Notebooks were sent to all health departments, hospitals, and county emergency coordinators. Since all materials in the notebooks are public domain, additional copies may be reproduced by the user.